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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/936,891	10/19/2001	Emine Capan	P/2107-181	2941

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EXAMINER

KRISHNAN, GANAPATHY

ART UNIT	PAPER NUMBER
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1623

DATE MAILED: 08/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/936,891	Applicant(s) CAPAN ET AL.	
	Examiner Ganapathy Krishnan	Art Unit 1623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,8,9,13-16,19 and 20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,8,9,13-16,19 and 20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

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DETAILED ACTION

The Election/Restriction mailed June 01, 2004 requiring the applicant to elect a single group with a distinct chemical core, from carbohydrates, alcohols, aldehydes and polyhydroxy compounds has been withdrawn. The Examiner has decided to include all of the above groups in the examination.

The claims 1, 8, 9, 13-16, 19 and 20 are pending and an office action on the merits of these claims is contained herein below.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 8-9, 13-16 and 19-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the term conversion. It is not clear what type of conversion is intended. Since the term is broad, any reaction of the said compounds is treated as a conversion.

Claims 15 and 16, which depend from Claim 1 recite the terms polymer stabilized, whereas Claim 1 recites polymer coated. It is not clear if applicants intend polymer coated to mean the same as polymer stabilized.

Claims that depend from a rejected base claim that is unclear/indefinite are also rendered unclear/indefinite and are rejected for the same reasons.

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Joint Inventors

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 8, 9, 13-16, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Crooks et al (Angew. Chem. Int. Ed. 1999, 38(3), 364-366, published February 1) in combination with Schmitt et al (US 3978000) and Capik et al (US 3670035).

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

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4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claim 1 is drawn to a process for catalytic conversion of carbohydrates, aldehydes, alcohols or polyhydroxy compounds in aqueous phase comprising carrying out the conversion using polymer coated metal particles having a diameter of 3-200nm. Dependent claims 8-9, 13-16 and 19-20 recite limitations with regard to the specific metals used, the polymer stabilized metal nanoparticles in a membrane arrangement or immobilized on a solid support.

Crooks et al drawn to hydrogenation catalysts teach the hydrogenation of allyl alcohol in aqueous solution in the presence of platinum and palladium nanoparticles encapsulated in a dendrimer (a class of polymer). The particles have a size in the range 4-60 nm (page 365, left column, first full paragraph and Table 1). However, Crooks et al do not teach the use of polymer coated metal nanoparticles and the use of rhodium, ruthenium, copper or nickel in the said process.

Schmitt et al drawn to catalysts teach the use of ruthenium and rhodium as catalysts in hydrogenation reactions (col. 8, lines 25-33).

Capik et al drawn to conversion of carbohydrates (in aqueous solution), teaches the use of nickel and copper as catalysts (base metals; col. 1, lines 30-40, 67-75; and col. 2, lines 21-24).

However, Schmitt and Capik et al do not teach the use of the metals as polymer coated nanoparticles.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of the prior art above and use metal nano particles coated with a polymer in the process as instantly claimed. Coating of metal nano particles is an obvious variant of the polymer encapsulated metal nano particles taught by Crooks.

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One of ordinary skill in the art would be motivated to do so since the presence of the polymer around the metal particle (encapsulation) is seen to enhance the stability and catalytic activity of the metal catalyst as taught by Crooks (page 365, right column, last paragraph).

It is well within the purview of one of ordinary skill in the art and also logical to extend this to other metals like ruthenium, rhodium, copper and nickel in order to enhance the stability/activity of other metal catalysts.

The use of the polymer coated metal particles in a continuous addition manner or addition at timed intervals and using the catalyst in a membrane arrangement or immobilized on a support are also seen as routine process optimization that are well within the purview of one of ordinary skill in the art.

Conclusion

Claims 1, 8, 9, 13-16, 19 and 20 are rejected

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ganapathy Krishnan whose telephone number is 571-272-0654.


The examiner can normally be reached on 8.30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James O. Wilson can be reached on 571-272-0661. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

GK



JAMES O. WILSON
SUPERVISORY PATENT EXAMINER
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